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MONTESSORI AND FROEBELIAN MATERIALS AND METHODS

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This article is written merely to start a discussion with regard to the possible combination of Montessori and Froebelian materials and methods as suggested by Dr. Holmes in his introduction to Dr. Montessori's book. No definite conclusions can be reached yet, for several reasons: (1) Mme. Montessori herself feels that her system is not thoroughly worked out; (2) there are few schools even among those called by her name which have accepted the most fundamental principle of the Dottressa's teaching, the right of the child to liberty; (3) it takes the sifting of time and the judgment of many minds to discover the truly permanent in any system.

It is not necessary to describe in detail the Montessori materials. Those interested in the new method have read either Dr. Montessori's book or the articles which give accurate descriptions and which have appeared in various magazines. They fall naturally into three groups as indicated by Dr. Holmes: those for sense training, physical training, and social training. The sense materials are such as the frames for buttoning or hooking, and the insets, plane and solid; the materials for physical training are such as the stairway, swing, rope ladder; the social materials are those used in the home activities such as preparing and serving food, cleaning, and dressing.

We can easily believe that Froebel would be in hearty sympathy with the physical and social training as advocated by Mme. Montessori, but where in her system the physical education would merely make provision for the exercise of the muscles and through these influence the human side of the child, Froebel would see a more direct spiritual effect in the experience itself. Froebel would hold that the child feels an exhilaration in the act of swinging such as Stevenson has expressed in

How would you like to go up in a swing,
 Up in the air so blue?
 Oh, I do think it the pleasantest thing
 Ever a child can do!
 Up in the air and over the wall,
 Till I can see so wide
 Rivers and trees and cattle and all
 Over the country side.

In the social education there would probably be the same difference. The Montessori training, by having the children do necessary things together, is fundamental but would lack the exercise of the imagination which would be given by the social game of Froebel. In the game the child would see in epitome the forms and results of social co-operation and so have these ideas brought to consciousness with much more distinctness. Muscle exercise is developing and lessons in serving our neighbors are ethical, but these can be given the highest significance by cultivating the imagination at the same time.

Let us confine the discussion to the question, Do the Montessori and Froebelian materials and method for sense and hand training have any relation to each other, are they equivalent, do they supplement each other or do they overlap?

The first Montessori materials, those for fastening cloth together, are not duplicated in any way by the Froebelian materials. They give a child an opportunity to repeat some of the operations which he sees carried on around him and which often relate to him very personally. For this reason he is much interested in them. By isolating these operations and giving them under conditions which make it possible for him to practice them and test whether he can do them properly, the first step is taken in the scientific study of the environment, which is by isolating and concentrating on particular problems. Attention is paid to material and its limitations, there is only one correct solution, there can be no intermediates between right and wrong in working out the problem. The very simplicity of having only two alternatives, but one of which is right, gives a little child a sense of security in solving the problem and of mastery when the definite, easily seen end is accomplished.

In all probability when a child uses this material it will not be the first time that he has studied his environment in this way, isolating certain actions and testing control; but Montessori has devised the simplest educational material which can be supplied for such study. (Little children will often for ten minutes at a time open and shut a drawer or drop and pick up a stone.)

The insets of different kinds isolate certain facts of the environment as to form and size. These materials, also, are so planned that there is but one correct solution to the problem presented. The child feels that there is some definite relation between the removable objects and the openings. Unless he finds out the right relation and puts each object in its proper place, he will be left with something that does not "fit." After several attempts a child about three years of age finds this state of affairs unsatisfactory.

When the flat insets are used with the cards the child corrects his own error. If he has not succeeded in finding a form which will completely cover the filled form or the outline or line, he has no one to blame but himself, his observation has been at fault, the material always offers a perfect solution.

With the long and broad stairs and the tower there is but one right way to show a satisfactory relation between the objects presented. The material again isolates a definite thing to be learned in proportion. Although by combining the different parts of the long stair, number values in addition, subtraction, and multiplication can be seen, this is a use which is secondary to its original purpose and is far too difficult for the child who is only ready to distinguish the differences in proportion.

With the foregoing materials the child would probably stumble on a correct solution even if he had no teacher near him to offer suggestions. With the color tablets the different textures of cloth, and the rough and smooth tracing, the teacher must take the initiative by supplying words to accompany the discrimination. She must also be at hand to show the next step when the child is ready to proceed. The eye and fingers soon become sensitive to differences in shade and texture but there is always a possibility of mistake which can be determined only by social approval or the reverse.

All of the above Montessori materials have tested sense discrimination, they have been sense gymnastics, they have called for observation and eye and muscle identification. They have given the child skill in controlling certain activities of his body, and the pleasure obtained has been from the accuracy with which he has been able to learn from matter and conform to its laws.

If we turn to the Froebelian materials we find that they can be used somewhat as those of Mme. Montessori but that a new element enters in which brings a different educational advantage.

The six prismatic balls can be used for sense discrimination, but while the Montessori color tablets have suggested by their form that they be laid upon the table, the balls suggest motion. As soon as motion is involved there comes a possibility of choice. The roundness says to the child, "grasp," "roll," "toss," "bounce," the string says, "swing," "drag," "twirl." So, although the material limits the child, there is so much latitude within these limitations that the child feels free. Instead of learning but one thing from his material, he learns several and experiments with his knowledge and exercises his human prerogative of choice in using material in several possible ways according to his own desire.

Just as soon as motion, choice, freedom, enter in, the material becomes food for the imagination. Stability points toward unchangeable law, choice in movement points toward infinite possible variations. The imagination is set free. Whereas with the flat object there has been only the desire to find a similar color, now, with the moving object, there is desire to find something similar in motion. So we have a "wheel," a "bird," a "pussy," and the many other ideas which flit through children's minds, and they are many, for moving objects attract a child's attention.

The three objects of Froebel's second gift, the wooden ball, cube, and cylinder, invite to a comparison in form and also to a comparison in motion. With these objects the errors in motion correct themselves, the cube will do but one thing, stand still; the ball will do but one thing, roll; the cylinder will do either. After learning the possibilities of the material a child must have in mind some definite thing which he wishes to do in order to confirm his knowledge or find his error. He must make a choice in

thought and then test his knowledge of material by his ability to carry out his idea. In the Montessori tower and stair the material has always said, "Do one thing." With Froebel's second gift the material says, "What will you do?" and then the child tests whether his idea is in accord with the idea in the material. Mme. Montessori thinks that children "rarely recognize solid geometric form."¹ According to her the ball, cube, and cylinder would not be as useful for little children in promoting the observation of form in the external world as plane figures. If this is granted, it means that these objects cannot be used as Montessori uses her form material but that they can be used in the distinctive way in which Froebel's material has the advantage, as types of motion. It is interesting to note that in play children almost invariably prefer the ball or cylinder to the more stable cube.

With Froebel's building-materials there are many variations which can be worked out. If one cube of the third gift (a cube divided into eight small cubes) is taken, there are many possible ways of placing another cube in relation to it, back, front, right, left, or on top, corner to corner or corner to face. The test is whether the resulting form embodies the child's idea as nearly as he can express it with the material at his command. The observation demanded is not only of the material itself but of form in the outside world. As the building-gifts progress, more and more possible variations present themselves until a child is able to represent quite complex objects. After he has used blocks of varying shapes, a child will be able to test his knowledge of the material by having the choice presented to him of which material will best carry out the idea which he wishes to represent.

The tablets (wooden circles, squares, triangles) and rings are in shape much like the insets and outlines of the Montessori materials. They invite to discrimination in form, but besides this they leave the child free to make arrangement in many different ways. Montessori feels that the geometrical analysis suggested by Froebel is too hard for little children except as called for in application to everyday living.² She thinks that each form should be

¹ Maria Montessori, *The Montessori Method*, p. 238.

² *Ibid.*, p. 243.

observed as a whole rather than as made up of parts.¹ To consider it in the latter way would be to deal with abstractions when the child is able to understand only the concrete.

Sticks and seeds like the other Froebelian materials are capable of being used in two ways, to show the limits of straight lines and points and also to show that by combination and arrangement they can be adapted to expressing an idea which the child has in mind.

In the "occupations" of Froebel (the materials which cannot be returned to their original form after the child has used them) there are many ways of varying the results. Paper, crayon, clay give many possibilities both in the discoveries about the material itself to which they lead and in the expression of ideas to which they lend themselves. Weaving and card sewing are more like the Montessori materials in that the choice is very restricted; the expression is limited to ideas about the material itself; imagination, interpretation cannot enter in. Both of these occupations are considered by Mme. Montessori too severe a strain on the eyes of little children.² Folding is considered by her "hand gymnastics"; she does not feel the value of the imaginative use of the objects made. Clay and drawing, which Froebel felt gave great opportunity for the creative use of the imagination and consequently an educative use, Mme. Montessori considers uneducative.³ Yet she feels that they are necessary in order that the teacher may study the "psychic individuality" of the child and find out how much of the knowledge implicit in the regular lessons has been assimilated.⁴

It would seem as though the Montessori and Froebelian materials were not equivalent, that they were intended to supplement each other. One lays emphasis on a single property of matter at a time, the other offers several for discrimination and consideration. One draws attention to the inert properties of matter which pertain to lower forms of nature, the other includes motion and possible position, the attributes of higher types of life. Montessori emphasizes the more primitive attitude of the child as a learner

¹ *Op. cit.*, p. 236.

³ *Ibid.*

² *Ibid.*, p. 162.

⁴ *Ibid.*, p. 241.

from material, Froebel suggests experimenting and learning from material but also using it to carry out human ideas. A child must advance from the study of simple isolated ideas to those of more complexity as found in daily experience. Matter and motion are both in the scheme of the universe, both have discoverable laws and need to be understood to give complete control of the outer world. A child presents various tendencies at the same time. Both the scientific attitude and the interpretative are necessary for well-rounded living.

In the function of the teacher, Froebel and Montessori do not completely agree. This is because of their fundamental difference in philosophy, which is also at the basis of their divergence in materials and methods. Montessori feels that the teacher should be at hand, to help a child in his effort to realize the relation between concrete material and himself. Froebel felt that the teacher's place was, not only to supply didactic material which the child could manipulate, but also to arouse ideas so that the child would seek to embody them in material. With Montessori, the teacher appeals only through the material which she presents; with Froebel, she appeals through the material and also by presenting some idea which it would be possible to express by conforming to the laws in the material.

Both Montessori and Froebel impress the fact that the teacher should study each child individually, and should present materials in a progressive way when the child shows that he is ready for the next step. Where Montessori would leave the child alone to learn as the race has, Froebel might suggest an idea to follow which would hasten the process of learning. Montessori seems to see no middle course between letting entirely alone and a form of dictation.¹ As for instance after a child is taught "blue," she would have the teacher make no application so that some day the child will be able to discover with great joy that the sky is blue. The only alternate she sees to this is pointing to the sky and saying, "What color is that?" and then teaching "blue."²

¹ On p. 115 Montessori suggests the value of a *generalized* observation, given by the adult: "We experience the joy of having crystallized an impression which we had before only imperfectly felt."

² Montessori, *op. cit.*, p. 110.

Would the Froebelian course be to make the child's senses alert by suggesting after the lesson, that he might find something else blue? The joy of later discovery would probably be as great and be made in a shorter time.

There seems to be but one right method with the Montessori materials, that of letting the child learn the one lesson which was intended by its isolation. This is satisfying and educative for young children. It is like drawing single strokes. These may please little ones for a while but soon they want a result which calls for more knowledge and control.

As Froebelian materials suggest different kinds of knowledge to be gained from the material itself and also the manipulation of the material for the purpose of interpretation as well as control, so there might be various methods by which these materials could be made educative. In an article entitled, "Principles Underlying the Organization of Kindergarten Materials,"¹ I have suggested the following:

When a child reaches kindergarten age, he is ready to use material in several different ways. (1) There is still much that he may learn by actual contact, many actions may still be impulsive responses to the qualities of the matter presented. (2) Many of the child's actions may be dictated by an adult or be imitations of copies set for him. (3) A child may be led to improve upon some form which he made while experimenting with the material. (4) Some idea may be stimulated, which in order to be complete must, through the expending of the full amount of effort, arrive at a goal. This method may be called either the suggestive or purposive; if viewed from the teacher's side, it is suggestive, from the child's it is purposive. It is founded upon the principles which Froebel realized as most educative because they organize experience.

A very simple illustration of the above methods may be given in the use of the divided cubes of the fifth gift. (1) A child might be left free to discover the possible uses of the half-cubes, for instance, for a slanting roof. (2) Some form with such a roof might be dictated or be imitated. (3) Some form that a child had accidentally made, might be repeated with suggested improvements. (4) A different kind of material might be used as a stimulus, such as a picture of a barn, in order to arouse the desire to make such a form, and the blocks then placed in the child's hands. A double stimulus would be applied through picture material and block material. The child would have a more or less

¹ Paper presented for discussion at the Training Teachers Session of the International Kindergarten Union, 1911.

definite idea to express, would put forth effort in trying to accomplish it satisfactorily, would control means to bring about the end which he feels of value, and would discover the possibilities of the material itself. The more developed children can be led to understand why man uses the sloping roofs, and for them the stimulus provided might have been in the form of a little problem, how to make a roof which would shed rain. Sometimes the older children may have an idea so clearly in mind that they can make a choice of the familiar material which they think would be best adapted to carry it out.

These different methods represent the different uses which man has made of his environment in gaining control over it. Each has some value in developing the right attitude toward the surroundings. None should be omitted in the kindergarten, none used exclusively. (1) If experiment is never allowed in the use of materials the children will not learn how to investigate, they will be helpless when confronted with any new problem, they will never advance beyond their companions but will lose the exquisite joy of discovery and contribute nothing to the knowledge of their own world. If no other method were used there would be only slow progress. A tendency would be formed to be governed by the moment's interest and not to sum up or connect. Respect might be lost for material, and effort would lie dormant if no product could be conceived better than the one chanced upon. (2) If a child never imitated a good copy or followed a dictation he would miss some of the uses of the material which he was capable of appreciating, but not discovering for himself. If this method were used exclusively, it would develop a habit of following blindly and the idea of taking the initiative would never be formed. (3) Where there is no repetition for the sake of improvement, there is a tendency to be satisfied with results that have not demanded a child's best effort, many things are attempted but nothing done well. A child can measure himself and gain fresh impetus for further effort when he sees two similar products placed side by side, one the result of today's work and the other of last week's. If this is the only method employed, the child uses each material for itself, never in relation to any other. It gives him a disconnected view of his environment, he will not feel the unity of thought underlying its various expressions in material. (4) If the purposive method is never used, the materials will never be organized upon the highest basis. A desirable end in view demands a child's best effort, right stimulation will not only call forth self activity to conceive that end, but also require that in its accomplishment control shall be gained over the particular material used and its relation shown to other materials through thought. If this method should be used exclusively, it would defeat its own object, the children would become discouraged and effort paralyzed because they would be tasked to arrive at a result before they could control the means through which to attain it.

The period between four and six years is the time when there is a decided change in the character of the purpose for which materials are used. At four, the gratification of the passing moment is all that is sought; at six, the result

and simple means by which it is attained are much enjoyed. These facts should in a general way decide the kind of method predominant at the beginning of the kindergarten and that at its close. It should be mainly experimental at the beginning and purposive toward the end.

The Montessori method with materials is (1), the first of those suggested above, that of learning by actual contact. The methods for Froebelian materials may be many, as stated above, progressing in harmony with the material.

"Method" is larger than the mere using of sense materials; it includes all the means by which the ultimate goal is to be reached as well as the goal itself. The ultimate aims in education of Montessori and Froebel appear to be nearer alike than the roads by which they would reach them. Compare the two following quotations.

The mother [in instructing Lena how to read] now resembles here in her action the sun, which in spring awakens the slumbering power in seeds and buds, which slowly rousing, further nourishes and strengthens itself. And so it is to be with all human education.¹

And such is our duty toward the child, to give a ray of light and to go on our way. . . . To stimulate life—leaving it then free to develop, to unfold—herein lies the first task of the educator."²

We can imagine Montessori writing in simpler words:

We are repeatedly impressed with the conviction that everything which is to be done for the true human development of the child, and all efforts which are to be made for such an education as will satisfy the needs of all sides of its being, must be connected with, and proceed from, the fostering of the impulse to employment, and the oversight of the first employment of the child.³

For Montessori the employment would signify "work," for Froebel it would involve a freer element "play." He felt that earnest play held the same values for a child as work does for the adult.

This employment for Mme. Montessori is to aim at the development of the will-power. "The method which is the subject of this book contains in every part an exercise for the will-power, when the child completes co-ordinated actions directed toward a given end, when he repeats patiently his exercises, he is training his positive

¹ Froebel, *Education by Development*, p. 15.

² Montessori, *op. cit.*, p. 115.

³ Froebel, *Pedagogy of the Kindergarten*, p. 24.

will-power."¹ For Froebel the will-power is more a means than an end. "It is the conquering . . . of the outward hindrance of life by one's own will-power and one's own enhanced power of action, which preserves to man peace, joy, and freedom in his own consciousness, and thus elevates him to that likeness to God for which he was destined."²

The desired result, the harmony between child and environment are expressed by Froebel thus: "One willingly makes oneself at home where one can act freely; and on the other hand, one can act freely where one has made oneself at home."³ In the Montessori schools where Mme. Montessori's principles are thoroughly understood and carried out, a result is seen similar to the above description in actual practice; the children are free and self-controlled. Surely these schools are approximating Froebel's dream of "an institution for self-instruction, self-education, and self-cultivation of mankind."⁴ The principal difference is shown in his next sentence: "Individual cultivation of the same through *play*, creative self-activity, and spontaneous self-instruction."⁵ The idea of play, of cultivation of the imagination, which Froebel gives as the first means, is that activity of the human mind which has resulted in works of art, in painting, music, and literature. It is this cultural side which seems to be lacking in the Montessori schools and upon which Froebel lays so much stress.

Mme. Montessori is restricted in materials and methods with materials, but she is free in actual practice because she feels so intensely the individual's right to follow his own life. Froebel's materials and possible methods are freer, but when he described his practice he became more circumscribed. Froebel's discovery of the educational value of simple sense materials was so startling that he had to impress the fact upon his contemporaries. When he planned lessons for little children he was so anxious for adults as well as children to find the knowledge that he knew was implicit in the materials, that he sometimes forgot just how the little child ought to approach them and so he dictated uses which would have

¹ Montessori, *op. cit.*, p. 364.

² Froebel, *Pedagogics of the Kindergarten*, p. 26.

³ *Ibid.*, p. 27.

⁴ *Ibid.*, p. 6.

⁵ *Ibid.*

been more educative if the child had discovered them for himself. Constant obedience to the word of an individual is slavish, but following the suggestion of a self-determined end sets free. Montessori with the calm patience born of waiting for the slow development of defective children is willing to let a child discover knowledge in order that he may gain something better, the *habit* of acquiring knowledge, the attitude of mind involved in "attention, comparison, and judgment."¹

The foregoing discussion has tried to suggest the feasibility of combining the different materials and methods into one system for the education of little children. There must be an elimination of some of the materials in order that the child may gain sufficient control over others to make their use valuable. Choice might be based upon the degree to which the materials carry out the characteristic aims of the two educators, the discovery and control of the properties of matter, and the interpretation through material. This is a question which admits of much debate. Perhaps the following might be discarded for children between three and six years of age: (1) Intricate forms of plane insets, many of the "stuffs" and shades and tints; these might be used later and in place of them at this age the child might study the more variable and complex properties of matter as shown in Froebelian material. (2) The Froebelian tablets and rings; these are meager in interpretative possibilities, and the properties of plane surfaces as well as number and proportion can be studied better through the Montessori material. (3) Weaving and card sewing can be postponed until a later period, not only because the eye and hand will then be stronger, but because they are not good as material for interpretation. They might be employed as advance steps of the Montessori material and method.

With the use of Froebelian methods should be kept in mind the great principle which makes the Montessori children so free. The object to be accomplished is never just the will of the teacher, there is always a third something in control, where it does not mean conforming to the limits which the material itself sets, it should be an end realized by the individual child, a task which

¹ Montessori, *op. cit.*, p. 360.

he sets himself. "Once the habit of work is formed, we must supervise it with scrupulous accuracy, graduating the exercises as experience has taught us. In our effort to establish discipline, we must rigorously apply the principles of the method. It is not to be obtained by words; no man learns self-discipline through hearing another man speak. The phenomenon of discipline needs as preparation a series of *complete actions* such as are presupposed in the genuine application of a really educative method. The end is obtained by developing activity in spontaneous work."¹ The truly educative method is to have the child realize the immediate goal toward which he is working and which he has selected or helped to select, to let him make a choice of means by which he will arrive there, and then *to control himself* enough to accomplish this end. This gives training in self-discipline.

If this principle is accepted in the use of Froebelian material it will do away with much uniformity in results. As the material is variable and designedly so, each individual may carry out the same idea in a different way. The uniformity heretofore required has been on the supposition that the result obtained—the object seen—was the thing of value to the child; this is not true as Montessori shows in her illustration of the child filling his pail with gravel.² It was the act of filling, not the full pail which was of value to the child. It is the way in which a result is obtained which determines whether it is educative, it must be attained by self-impulsion toward some self-determined end.³

Although the result of accomplishing diverse things with the same material, is exactly contrary to that achieved by the use of Montessori materials, which by their very nature require uniformity, the use of the same method will produce this opposite effect because of the variable nature of the kindergarten material. It is this method founded upon the principle of "spontaneous activity" which Montessori insists makes for self-discipline.

Mme. Montessori sees self-development coming through the conquest of self-determined ends. In order that the child may

¹ Montessori, *op. cit.*, p. 350.

² *Ibid.*, p. 355.

³ Dr. Dewey says: "It is better to get an externally efficient *method* of getting a result than the mechanical result. It is better to fail intelligently than to succeed accidentally."

gain the habit of striving toward an end and accomplishing what he set out to do, she supplies material which will lead to gradually more difficult attainments. It is the very simplicity of her first materials which make them so educative for little children; they provide an easily attainable goal but one which represents a completed action. Of the separate actions leading to the game of silence Montessori says: "These actions being directed toward an end have no longer the appearance of disorder, but of work. This is discipline which represents an end to be attained by means of a number of conquests. The child disciplined in this way is no longer the child he was at first, who knows how to be good passively; but he is an individual who has made himself better—who has made a great step forward, who has conquered his future in his present."¹ "He is learning how to become his own master."²

It must be remembered that "master" for Montessori means almost wholly one who controls himself in order to conform to some established standard; the emphasis is on stability. This is excellent training for little children especially in this age of nervous frenzy in invention and quick change of custom, but there should also be education which prepares for the freer aspect of life. It is this emphasis on stability which gives the children in the Montessori schools their characteristic poise and freedom. With more emphasis on the changeable side of living, the children would not appear so self-controlled but might be better prepared for progress in life.

Whatever the limitations that are felt in the Montessori philosophy, material, and method, there can be but one judgment with regard to the purpose of method as expressed thus: "The greatest triumph of our educational method should always be this: to bring about the spontaneous progress of the child."³

As stated in the beginning, this article is only intended to provoke discussion. The Montessori idea of respecting the individual development and needs of each child appeals very strongly to kindergartners. As they long to give little children the best opportunities for self-cultivation which can be obtained, they try to be neither hasty in giving up the good in the old theory and practice, nor slow in accepting what is of value in the new.

¹ Montessori, *op. cit.*, p. 352.

² *Ibid.*, p. 366.

³ *Ibid.*, p. 228.